

THE GEORGE WASHINGTON UNIVERSITY  
WASHINGTON DC

REGULATORY STUDIES CENTER

Public Interest Comment<sup>1</sup> on

The Office of Management and Budget's  
Draft 2010 Report to Congress on the Benefits and Costs of Federal Regulations

Susan E. Dudley, Arthur G. Fraas, and Brian F. Mannix<sup>2</sup>

Pursuant to the Regulatory Right-to-Know Act,<sup>3</sup> the Office of Management and Budget (OMB) submits to Congress each year "an accounting statement and associated report" including estimates of the total annual benefits and costs of Federal rules and paperwork; an analysis of impacts of Federal regulation on State, local, and tribal government, small business, wages, and economic growth; and recommendations for reform.

OMB's Draft 2010 Report to Congress on the Benefits and Costs of Federal Regulations (the Report) provides the public valuable information both on estimates of the effects of major regulations issued by Executive Branch agencies and also on OMB's focus and priorities. This comment from the George Washington University Regulatory Studies Center supports the emphasis on transparency and open government, and on improving regulatory analysis to inform regulation, and offers recommendations for furthering these goals. It also suggests some alternative interpretations of research presented in the Report related to economic growth and the social cost of carbon.

The organization of this comment generally follows the structure of the Report itself.<sup>4</sup> The first section responds to Chapter 1, which covers the benefits and costs of federal regulation and OMB's assessment of regulatory impacts on wages and economic growth. The second section responds to Chapter 2, which discusses recommendations for reform, including analytical challenges, such as those related to estimating the social cost of carbon. We conclude with a summary of our recommendations to OMB.

---

<sup>1</sup> The George Washington University Regulatory Studies Center raises awareness of regulations' effects with the goal of improving regulatory policy through research, education, and outreach. As part of its mission, the GW Regulatory Studies Center conducts careful and independent analyses to assess rulemaking proposals from the perspective of the public interest. This comment reflects the views of the authors, and is written to inform regulatory policy from the perspective of the public, rather than any particular affected party or special interest group. It does not represent an official position of the GW Regulatory Studies Center or the George Washington University. The Center's policy on research integrity is available at <http://www.gwu.edu/~regstudies/Research.html>.

<sup>2</sup> All of the authors have served in the Office of Information and Regulatory Affairs. They are now respectively, Director of the GW Regulatory Studies Center and Research Professor of Public Policy and Public Administration at the George Washington University; Visiting Scholar at Resources for the Future; and President of Buckland Mill Associates.

<sup>3</sup> Consolidated Appropriations Act of 2001 (H.R. 5658, section 624, P.L. 106-554).

<sup>4</sup> The Report also includes a chapter updating the implementation of the Information Quality Act and agency compliance with the Unfunded Mandates Reform Act. These are important initiatives, but this comment does not address them.

## I. Chapter I: The Benefits and Costs of Federal Regulation

Chapter I of the Report presents estimates of the aggregated annual benefits and costs of regulations issued over the last decade with more detail for fiscal year 2009, and examines the broader impact of federal regulation. In this section, we offer observations on the presentation of this year's major regulations, regulatory trends, and regulatory impacts.

### A. Estimates of the benefits and costs of major regulations

Federal agencies issued 66 major rules issued in FY 2009. The list of those rules in Table 1-4 is useful; however, they could be presented in a more transparent way. (For example, it is not clear what order the regulations are listed in. Are regulations listed first by whether benefit and/or cost information is available and then by date of issuance? An alphabetical listing by agency might be more transparent and useful as the secondary sort criterion.) Further, while it is valuable to have all the major regulations presented in one table, OMB may need to provide more information to clarify its classification of the rules. For example, the discussion in the text refers to economically significant regulations that OMB considers to be transfer rules, but the Report does not identify which rules those are.<sup>5</sup> OMB should also include in this table the date on which each regulation was issued, as well as the regulation's regulatory identification number (RIN), to facilitate reviewer access to information on the individual regulations.<sup>6</sup>

#### 1. Estimating the social cost of transfer regulations

Fully half of these major regulations (33) implement budget programs, for which reported costs are budget outlays or "transfers" from taxpayers to beneficiaries. The Report recognizes that "transfer rules may impose real costs on society to the extent that they cause people to change behavior, either by directly prohibiting or mandating certain activities, or, more often, by altering prices and costs." It notes that the "costs resulting from these behavior changes are referred to as ... deadweight loss" and says that "OMB will consider incorporating these estimates [of deadweight losses associated with transfers] into future Reports." We endorse this plan, and recommend that OMB begin immediately by relying on the analytical procedures outlined in Circular A-94. In a parallel analysis of the deadweight losses associated with taxation, Circular A-94 observes:

Because taxes generally distort relative prices, they impose a burden in excess of the revenues they raise. Recent studies of the U.S. tax system suggest a range of values for the marginal excess burden, of which a reasonable estimate is 25 cents per dollar of revenue.<sup>7</sup>

We believe it is reasonable to use this 25 percent as a lower bound on the deadweight losses associated with regulations governing transfer programs, because the associated economic

---

<sup>5</sup> The Report states that 33 of this year's rules implement budget programs, yet there are fewer regulations listed in Table 1-4 with information in the "transfer" column.

<sup>6</sup> In an April 2010 memorandum to the President's Management Council, OIRA Administrator Cass Sunstein asked agencies to "use the Regulation Identifier Number (RIN) on all relevant documents throughout the entire lifecycle" of a rulemaking." [http://www.whitehouse.gov/omb/assets/inforeg/IncreasingOpenness\\_04072010.pdf](http://www.whitehouse.gov/omb/assets/inforeg/IncreasingOpenness_04072010.pdf)

<sup>7</sup> Circular A-94, October 1992. <http://www.whitehouse.gov/omb/rewrite/circulars/a094/a094.html>

distortions are likely to be at least as great as those caused by taxation. There is an extensive literature on rent-seeking, beginning with a 1967 paper by Gordon Tullock,<sup>8</sup> suggesting that parties who seek to extract or prevent government transfers have incentives to invest resources up to the value of the transfer – effectively raising the deadweight losses of such regulations (in the long run, with rational expectations) to 100 percent of the expected transfers. Rent-seeking costs are important, and we urge OMB to pursue research in this literature with the aim of improving both budgetary and regulatory decisions. However, we recognize that it can be difficult to ascribe a specific quantity of rent-seeking to any particular regulatory decision, and therefore OMB may want to account for such costs separately.

Regardless of how OMB decides to handle rent-seeking costs, there is no reason to delay accounting for the deadweight losses associated with taxation and spending, and agencies should never assume that these are zero. Until better information becomes available, we recommend using 25 percent as the presumptive deadweight loss associated with the delivery of transfer payments governed by regulations. When the transfer is from the federal treasury, that deadweight loss is in addition to the 25 percent deadweight loss from taxation, as is already specified in Circular A-94. The total deadweight loss associated with federal transfer programs would be 50 percent of the transfer amount. Applying this approach to the rules in Table 1-4 for which OMB provides estimates of transfer costs yields estimates of deadweight social costs associated with the transfer payments in this year’s regulations ranging from \$17 billion to \$19 billion.<sup>9</sup>

## 2. Discount rate

Table 1-5 is an interesting presentation of net costs per life saved for selected health and safety regulations issued in FY 2009. Consistent with the requirements of OMB Circular A-4, we suggest that OMB report these data using a 7 percent discount rate, in addition to the 3 percent discount rate presented in the table.<sup>10</sup>

### B. Regulatory Trends

The Report recognizes that its estimates of benefits and costs are limited to regulations issued over a ten year period, and even for this window, may not reflect “a complete accounting” of their effects. Particularly in the Report’s discussion of regulatory trends over time, it would be useful for OMB to present other estimates of the impact of regulations. Measuring the effects of regulation is understandably difficult, and OMB could provide a public service by bringing together different estimates developed with different methodologies. The GW Regulatory Studies Center and the Weidenbaum Center on the Economy, Government and Public Policy at Washington University in St. Louis released a report in May that examines the portion of the fiscal budget devoted to developing and enforcing federal regulations from 1960 to the present.

---

<sup>8</sup> See Gordon Tullock, 'The Welfare Costs of Tariffs, Monopolies and Theft' *Western Economic Journal*, 5, pp. 224-232 (1967), and 'The Cost of Transfers' *Kyklos*, 24, pp. 629-643 (1972).

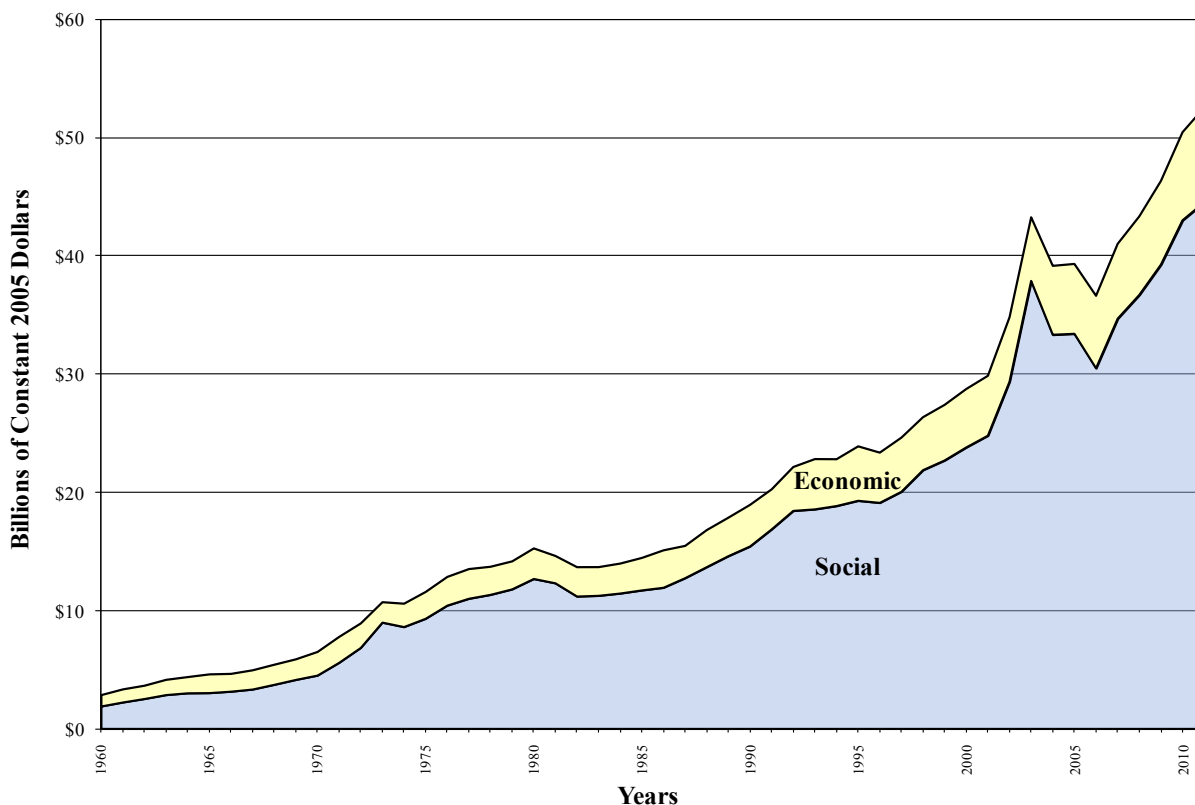
<sup>9</sup> \$17 billion and \$19 billion are the sums of the lower-bound and upper-bound estimates presented in Table 1-4 multiplied by 0.5.

<sup>10</sup> Circular A-4 (September 2003) states: “For regulatory analysis, you should provide estimates of net benefits using both 3 percent and 7 percent.” <http://www.whitehouse.gov/omb/circulars/a004/a-4.pdf>

While these on-budget costs of regulation represent a small fraction of the full burden of regulations to society (and do not provide information on regulatory benefits) the data presented in that report offer useful insights into the growth and composition of regulation over the last fifty years.<sup>11</sup>

The regulatory program-level data that comprise the “Regulators’ Budget” are available from the GW Regulatory Studies Center and Weidenbaum Center. We reproduce two graphs below, which show the trends in on-budget spending and staffing at regulatory agencies since 1960.

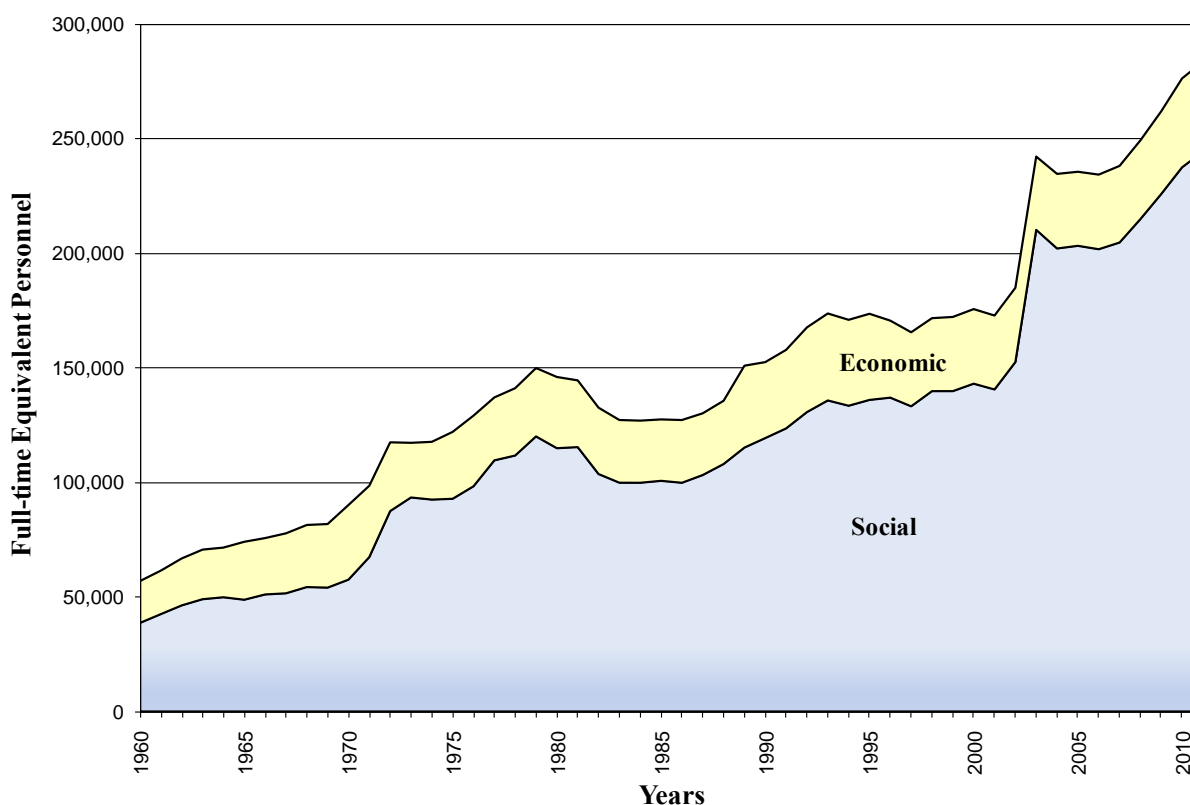
### Budgetary Costs of Federal Regulation, Adjusted for Inflation



Source: Weidenbaum Center, Washington University and the Regulatory Studies Center, the George Washington University. Derived from the *Budget of the United States Government* and related documents, various fiscal years.

<sup>11</sup> Other estimates of regulatory trends include the Small Business Administration Office of Advocacy’s periodic reports on the Impact of Regulatory Costs on Small Firms (<http://www.sba.gov/advo/research/rs264tot.pdf>), Clyde Wayne Crews’ annual 10,000 Commandments report compiling data on regulatory trends (<http://cei.org/10kc>), and James Gattuso’s “Red Tape Rising” study on recent regulatory trends (<http://www.heritage.org/Research/Reports/2008/03/Red-Tape-Rising-Regulatory-Trends-in-the-Bush-Years>).

## Staffing of Federal Regulatory Agencies



Source: Weidenbaum Center, Washington University and the Regulatory Studies Center, the George Washington University. Derived from the *Budget of the United States Government* and related documents, various fiscal years.

### C. The impacts of regulations

As required by the Regulatory Right to Know Act, the Report discusses the impacts of federal regulation on small businesses, wages and employment, and economic growth.

#### 1. Economic regulation

A brief discussion of research on “economic regulation” notes the evidence that regulated industries may be more easily unionized, and that unions may find it easier to extract higher wages; it also notes that such regulation causes higher prices in the product market in regulated industries, which tends to erode real wages. It is worth putting all this in a larger context: the erosion of real wages is part of a much larger loss of consumer surplus due to reduced output and reduced innovation in industries subject to economic regulation. Much of this, particularly the welfare losses from reduced innovation, cannot be observed simply by looking at prevailing wages and prices. At the same time the higher nominal wages of workers in regulated industries is only one component of the monopoly rents that accrue to government-protected monopolies – rents that tend to be dissipated and converted into real economic losses by rent-seeking, as Tullock observed in his 1967 paper.<sup>12</sup>

<sup>12</sup> Tullock, *Op cit.*

An even earlier paper gives a useful perspective on the wage effects of economic regulation:

[A]bolish this law without delay. . . The person who profits from this law will complain bitterly, defending his *acquired rights*. He will claim that the state is obligated to protect and encourage his particular industry; that this procedure enriches the state because the protected industry is thus able to spend more and to pay higher wages to the poor workingmen.

Do not listen to this sophistry by vested interests. The acceptance of these arguments will build legal plunder into a whole system. In fact, this has already occurred. The present-day delusion is an attempt to enrich everyone at the expense of everyone else; to make plunder universal under the pretense of organizing it.<sup>13</sup>

## 2. Regulation and economic growth

The discussion of the impact of regulation on economic growth is interesting, but would benefit from greater rigor. For example, it notes that some forms of regulation (by ~~prevent[ing]~~ disease among workers, avoiding accidents in the transportation sector, or ensuring efficient operation of credit markets”) may have a positive effect on growth while ~~excessive or unnecessary regulations~~” may place undue burdens on companies and workers and hinder growth. The Report offers little insight into how to distinguish necessary from unnecessary regulation; however, Executive Order 12866 provides guidance in its stated ~~regulatory philosophy~~”:

Federal agencies should promulgate only such regulations as are required by law, are necessary to interpret the law, or are made necessary by compelling public need, such as material failures of private markets to protect or improve the health and safety of the public, the environment, or the well-being of the American people.

Regardless of how competent the federal government is, it cannot effectively address all problems for all people. Conscientiously focusing federal government resources on addressing ~~material failures of private markets~~” would likely improve regulatory policies and contribute to greater economic growth, prosperity, and well-being.

## 3. The effects of regulation on GDP

Section I.D.4. of the draft report discusses some measures of economic growth and how they might be affected by regulation. While this is an important line of inquiry that deserves further research, there are also some misunderstandings in the literature that OIRA needs to be wary of. Some attempts to use GDP as a measure of welfare are fundamentally misguided. While it is true that ~~GDP does not capture the benefits of regulation,~~” it is also true that GDP does not capture the benefits of a sandwich. If Harold buys a sandwich for \$3 that is worth \$5 to him, the GDP measures only the \$3 exchange; the ~~benefit~~” of the transaction—the \$2 consumer surplus—is ignored. Contrast this with Benefit-Costs Analysis, which would count *only* the \$2 surplus and would ignore the \$3 price. At a macro level, GDP changes are certainly correlated with changes in consumer welfare, but at the micro level the two concepts are almost completely

---

<sup>13</sup> Frederick Bastiat, *The Law* (1850), How to Identify Legal Plunder, [http://bastiat.org/en/the\\_law.html](http://bastiat.org/en/the_law.html)

disjoint. The GDP should not be regarded as somehow incomplete because it does not measure welfare; it is intended to measure only economic exchange.<sup>14</sup>

Note that if a regulatory requirement (a trade barrier, for example) raises the cost of the sandwich by \$1, an additional dollar will be entered twice into the National Income and Product accounts (because it is a double-entry accounting system), but neither the regulatory cost (also \$1, for Harold, in lost surplus) nor the regulatory benefits, if any, will appear at all. If the regulation raises the production cost of the sandwich by \$4, then Harold simply won't buy it, and it won't be made. The welfare loss will not be \$4, but only the \$2 loss of consumer surplus; and neither that, nor the benefits of the rule will appear in the GDP. Such are the complexities of the relationship between National Income Accounts and consumer welfare; this is something to be sensitive to, but not something to be fixed by trying to conflate the two. With the present emphasis on economic stimulus and job creation, it is particularly important for OMB to maintain clarity in distinguishing measures of economic activity from measures of welfare.

Some of the other literature cited in the Draft Report could be misleading in different ways. The observation that people's self-reported happiness may decline with their neighbor's income, for example, should perhaps be added to the list of reasons to question the use of expressed preferences in benefit-cost analysis. Certainly such an observation should not be used to attribute benefits to government policies designed to segregate neighborhoods by income class. Neither should it be used to attribute "spectator benefits" to policies that inflict harm on a subset of the population.

## **II. Chapter II – Recommendations for Reform**

Chapter II recommends several reforms to improve regulatory policy and analysis. It suggests that as a result of improved regulatory impact analysis (as recommended in the 2009 Report to Congress), and "in a noteworthy contrast to the first year of the two previous Administrations, the quantified benefits of final rules significantly exceeded the quantified costs for the calendar year 2009." It is disappointing that, despite the expressed focus on transparency in this year's recommendations, OMB does not provide the data that would allow reviewers to reproduce or verify this statement or the accompanying Figure 2. The Report includes no information to identify for reviewers which regulations are included in these calendar year totals, nor their estimated benefits and costs.

### **A. Analytical Challenges**

The Report's recommended reforms are generally sound. First, OMB reinforces its 2009 recommendations, including that agencies provide "clear, tabular presentations of both benefits and costs, including nonquantifiable variables" for all significant regulations. Implementation of this recommendation would improve not only the clarity and transparency of the analysis supporting significant regulatory actions, but the quality of the regulations themselves. The 2009 Report also encouraged agencies to conduct "retrospective analyses of the effects of especially significant regulations," which while difficult on several levels is worthwhile for understanding

---

<sup>14</sup> See "The Color of Money: Is It Green Enough?" Regulation 23 No. 2 (Cato Institute, 2000). <http://www.cato.org/pubs/regulation/regv23n2/mannix1.pdf>

potential unintended consequences of new regulations, as well as the effects of regulations on the books.

Understanding the distributional effects of regulations has long been recognized to be an important aspect of regulatory analysis.<sup>15</sup> The Report appropriately recognizes that when “regulation imposes significant burdens on or delivers significant benefits to those near or below the poverty line, it may well be appropriate to identify those effects and to take them into account (to the extent permitted by law).” Agencies that invoke environmental justice arguments in favor of regulation that provides benefits to disadvantaged groups sometimes neglect to consider whether regulatory costs may pose disproportionate burdens on these same groups. For example, the Safe Drinking Water Act provides for a variance from some regulatory requirements based on communities’ ability to pay for controls. EPA has focused on the benefits of the regulation and resisted issuing regulations that would allow states to grant such variances on the grounds that it would lead to unequal drinking water quality in some communities. However its analysis neglects the inequities in the cost of the regulations, which would impose a dramatically disproportionate burden on small rural communities required to install expensive treatment.<sup>16</sup>

The Report offers three important steps to meet the President’s commitment to transparency and open government.

### **1. Promoting participation and collaboration in the regulatory process**

The Report states that “[r]egulations and their supporting justifications should be based on the open exchange of information and perspectives among public officials, experts in relevant disciplines, and the public as a whole,” and suggests useful ways to achieve that goal. To harness the wisdom of dispersed knowledge, OMB could encourage agencies to experiment with a collaborative “wiki” approach to gathering and sharing information on key regulatory issues. Engaging public input through a wiki is an intriguing possibility that holds the potential to revolutionize how agencies gather information on which to base regulations. Rather than each individual or group filing comments in parallel, with agencies responding to comments individually, a wiki approach could provide a forum for diverse individuals to build on each other’s information, adding, editing, updating and correcting to engage the wisdom of dispersed knowledge on issues where no one person has complete information. A few pilot efforts would be needed to address issues such as what types of questions would be most conducive to this approach, whether to open the forum to all participants or limit it to identified experts, and how to engage collaborators or defend against mischief or abuse.

---

<sup>15</sup> Executive Order 12866 and its predecessor [E.O. 12291](#) both explicitly require regulatory analyses to consider the distribution of costs and benefits, and Circular A-4 provides an in-depth discussion of understanding distributional effects.

<sup>16</sup> The Safe Drinking Water Act directs EPA to set regulations such that the benefits of treatment are commensurate with the costs to the largest water systems, which can spread the costs of installing treatment over a large number of people. The costs of the same treatments are orders of magnitude higher for individuals supplied by small water systems, and as a result are not justified by the benefits. For more information on drinking water compliance issues see CRS Issue Brief, 2003: [http://www.policyalmanac.org/environment/archive/safe\\_drinking\\_water\\_act.pdf](http://www.policyalmanac.org/environment/archive/safe_drinking_water_act.pdf)



One area ripe for greater transparency and public input is EPA's Integrated Risk Information System (IRIS). EPA created IRIS in 1980 as an internal database to serve as a single repository of EPA information on hazard and toxicity values for chemicals. It is now more widely used, but EPA's Science Advisory Board, the Government Accountability Office and others have expressed concerns about its lack of transparency, particularly regarding the selection of studies to include and the assumptions used. EPA responded in 2008 with new procedures aimed at providing greater transparency, objectivity, balance, rigor and predictability in IRIS assessments.<sup>17</sup> These procedures defined critical and appropriate roles for public and interagency comments and interactions, and promoted greater communication and sharing of information between all interested parties and EPA. May 2009 revisions to the IRIS process appear to have taken a step backward, reducing transparency and accountability by limiting interagency and public interactions and abandoning any opportunity for peer-reviewers to comment on the degree to which EPA's final IRIS assessment responded to their comments.<sup>18</sup> These changes raise questions about EPA's commitment to transparency and open government, as well as about the scientific validity of resulting IRIS assessments.<sup>19</sup>

## 2. Publicly accessible summaries of key information

We endorse these recommendations, but observe that aspects of OMB's Report could be more transparent and accessible, as noted above. OMB should provide the data relied on in this and previous reports in an accessible format to allow the public to reproduce and evaluate OMB's estimates.

OMB should also adopt a key recommendation of the Bipartisan Policy Center's (BPC) Science for Policy Project, ~~to~~ promulgate guidelines (through executive orders or other instruments) to ensure that when federal agencies are developing regulatory policies, they explicitly differentiate, to the extent possible, between questions that involve scientific judgments and questions that involve judgments about economics, ethics and other matters of policy."<sup>20</sup> As the BPC Report observes, "some disputes over the politicization of science actually arise over differences about policy choices that science can inform, but not determine." We concur with the BPC's recommendation that the Administration ~~re~~ revise regulatory processes that, in as many situations as possible, could help clarify for both officials and the general public which aspects of disputes are truly about scientific results and which concern policy."

Related to this, OMB and the agencies should work to present clearly the sources and effects of uncertainties involved in estimating benefits and costs of regulations. As the Report notes, the uncertainty embedded in the estimated benefits of EPA's air quality rules are particularly large,

---

<sup>17</sup> The press release announcing the process change is available at [http://yosemite.epa.gov/opa/admpress.nsf/4f88b25ea20ccb985257359003f5345/1365469639099e6585257427005b\\_b22a!OpenDocument](http://yosemite.epa.gov/opa/admpress.nsf/4f88b25ea20ccb985257359003f5345/1365469639099e6585257427005b_b22a!OpenDocument). However, the link to the actual process description no longer works.

<sup>18</sup> EPA's IRIS website: <http://cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=190045>

<sup>19</sup> From 2003-2008 EPA sent four IRIS assessments to the National Research Council of the National Academy of Sciences for the highest level of review. In each case the NRC panels found significant shortcomings with the IRIS assessments and suggested significant changes. See, e.g., National Research Council (2009) *Review of the Environmental Protection Agency's Draft IRIS Assessment of Tetrachloroethylene*. National Academies Press, Washington, DC

<sup>20</sup> Bipartisan Policy Center Science for Policy Project, *Improving the Use of Science in Regulatory Policy*, August 2009, p. 4. Available at <http://www.bipartisanpolicy.org/sites/default/files/BPC%20Science%20Report%20fn1.pdf>.

and include uncertainties associated with estimated changes in emissions attributable to regulatory action, the air quality modeling relating emission changes to ambient air concentrations, and the concentration-response relationship between airborne particulate matter and mortality. Fraas's examination of recent regulatory impact analyses (RIAs) supporting EPA's national ambient air quality standards (NAAQS) finds that they fail to provide a comprehensive statement of uncertainty, despite recommendations from the National Academy of Sciences and others.<sup>21</sup> Given the importance of the NAAQS in driving air-related environmental requirements and the fact that the same questions arise repeatedly with the periodic review of the NAAQS under the CAA, it seems imperative that EPA develop a better quantitative uncertainty analysis. This imperative is consistent with the Circular A-4 requirement that major rules with benefits or costs of \$1 billion or more present a formal quantitative analysis of the relevant uncertainties in the analysis.<sup>22</sup> (

### 3. Simple, straightforward justification of preferred option

The Report cites E.O. 12286 to support including in the summary of a new regulation

~~an~~ explanation of why the planned regulatory action is preferable to the identified potential alternative." Specifically, the explanation should demonstrate that the agency has selected the approach ~~that~~ maximizes net benefits (including potential economic, environmental, public health and safety, and other advantages; distributive impacts; and equity) unless a statute requires another regulatory approach" [Section 1(a)].<sup>23</sup>

Not only is it important that regulatory analyses justify the preferred option, but they should also honestly evaluate several alternatives. According to E.O. 12866: ~~In~~ deciding whether and how to regulate, agencies should assess all costs and benefits of available regulatory alternatives, including the alternative of not regulating." Justification of the regulation should also include a clear identification of the ~~compelling~~ public need" or ~~material~~ failures of private markets," as required by E.O. 12866.

### B. Social Cost of Carbon

The Report illustrates some analytical challenges with a discussion of interagency efforts related to the social cost of carbon (SCC). It presents estimates of the SCC developed by the Interagency Working Group on the Social Cost of Carbon (IWGSCC) for use in Regulatory Impact Analysis (RIA) under Executive Order 12866.<sup>24</sup> As shown in the table reproduced below, the IWGSCC developed three SCC values for each given year, based on different discount rates (2.5, 3 and 5 percent). The SCC value for each discount rate represents the average modeled value produced by three different integrated assessment models (IAMs): the FUND, DICE, and PAGE models.<sup>25</sup> It also offers a fourth value based on the 95<sup>th</sup> percentile SCC

---

<sup>21</sup> Arthur G. Fraas, "The Treatment of Uncertainty in EPA's Analysis of Air Pollution Rules: A Status Report," Resources for the Future Discussion Paper, <http://www.rff.org/rff/documents/rff-dp-10-04.pdf>

<sup>22</sup> Circular A-4, p. 40

<sup>23</sup> Report, p. 41.

<sup>24</sup> IWGSCC, "Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12866", February 2010. The paper can be found at [www.epa.gov/otaq/climate/regulations/scs-tds.pdf](http://www.epa.gov/otaq/climate/regulations/scs-tds.pdf).

<sup>25</sup> See the IWGSCC paper for a discussion of each of these models, pages 5 - 9.

estimate across the three IAMs discounted at 3 percent to reflect ~~higher-than-expected~~ impacts from temperature change further out in the tails of the SCC distribution.”<sup>26</sup>

**Social Cost of CO<sub>2</sub> (per CO<sub>2</sub>-Equivalent Metric Ton), 2010 – 2050 (2007 dollars)**

<b>Discount Rate</b>	5%	3%	2.5%	3%
<b>Year</b>	Avg	Avg	Avg	95th
2010	4.7	21.4	35.1	64.9
2015	5.7	23.8	38.4	72.8
2020	6.8	26.3	41.7	80.7
2025	8.2	29.6	45.9	90.4
2030	9.7	32.8	50.0	100.0
2035	11.2	36.0	54.2	109.7
2040	12.7	39.2	58.4	119.3
2045	14.2	42.1	61.7	127.8
2050	15.7	44.9	65.0	136.2

The Report states that the central goal of the IWGSCC paper was to provide agencies with a value that could be used in developing benefit-cost analyses for regulatory actions that have small, or ~~“marginal,”~~ effects on cumulative global emissions. Both the IWGSCC paper and the Report acknowledge the many uncertainties involved in these estimates and the evolving state of knowledge regarding the science and economics of climate impacts. The Report notes that the existing literature leaves significant gaps, citing, for example, incorporation of the possibility of adaptation, omitted adverse effects, and the risk of catastrophe. Because of the gaps in our knowledge and the substantial uncertainties that surround these estimates, the Report recommends that ~~the~~ SCC should be revisited as more is learned about the key issues.”<sup>27</sup>

We offer observations on two issues associated with the IWGSCC report that we believe deserve careful attention: (1) the differences in estimates of damages in the near-term across the three IAMs and (2) the treatment of Circular A-4’s guidance with respect to discount rates.

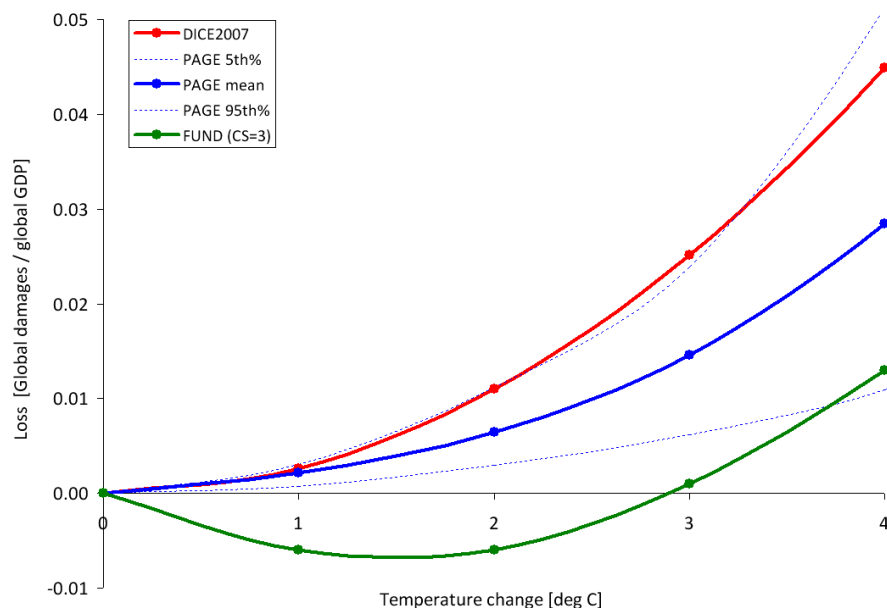
**1. Difference in IAM estimates for modest temperature changes**

Figure 1B of the IWGSCC paper, reproduced below, reveals the striking difference between the three IAMs’ damage estimates associated with a 1° to 3° C change in temperature. The FUND model projects net benefits from warming in the early decades of this century while DICE-2007 and PAGE project net damages with any increase in temperature above current levels.

<sup>26</sup> IWGSCC, 1, and Report, p. 42.

<sup>27</sup> Report, p. 43.

**Figure 1B of IWGSSC Paper:  
Annual Consumption Loss for Lower Temperature Changes in DICE, FUND, and PAGE**



The DICE-2007 model is structurally constrained to yield positive damages with an increase in temperature.<sup>28</sup> A review of the underlying methodology of DICE-2007 suggests that it does not consider certain benefit categories that, with a modest degree of warming, are likely to yield net benefits. For human health effects, for example, it focuses on increased mortality from climate-related diseases, such as malaria and dengue fever, and pollution,<sup>29</sup> and does not consider categories of human health effects that would benefit from moderately warmer temperatures. The DICE-2007 model does not consider temperature-related mortality, despite evidence that a modest degree of warming would yield a reduction in wintertime mortality that exceeds mortality associated with heat-related stress in the warmer months of the year. For example, Tol estimates that a temperature increase of 1° C would yield a net global reduction in mortality on the order of 50,000 deaths per year, with the reduction in mortality in the temperate regions more than off-setting the increase in heat-related mortality in tropical regions.<sup>30</sup>

The FUND model yields positive benefits from warming up to a 2.5° C temperature increase largely because of the benefits from a reduction in wintertime-related deaths and illness.<sup>31</sup>

<sup>28</sup> The damage function in DICE-2007 is given by:  $L(t) = 1 - 1/[1 + a \cdot T(t)^b]$  where  $a = 0.0028388$  and  $b = 2$ . Thus,  $L(t)$  is positive for all  $T(t)$  greater than 0. Of course, this is a summary statement of global net damages. Individual regions may have negative damages (positive benefits) for a modest degree of warming.

<sup>29</sup> IWGSSC, p.6. Also, see Nordhaus and Boyer 2000, 78-82.

<sup>30</sup> Tol, "Estimates of the Damage Costs of Climate Change," *Environmental and Resource Economics* 2002, v. 21, 47 - 73. For the United States, see also O. Deschenes and E. Moretti, "Extreme Weather Events, Mortality, and Migration (2009), *The Review of Economics and Statistics*, v. XCI, 659-681. In addition, note that Deschenes and Moretti find that heat-related mortality appears to be associated with "harvesting"—i.e., individuals die only a few days earlier—while cold-related mortality results in a significant reduction in life expectancy. (ibid. 660.)

<sup>31</sup> Mastrandrea, M. 2009, "Calculating the benefits of climate policy: Examining the assumptions of Integrated Assessment Models." *Pew Center of Global Climate Change Working Paper* 60, 20-21.

A broad array of “amenity” effects are also associated with milder winters, but are not captured by these models. Since World War II, millions of people have moved from the harsh northern winters of the Northeast and upper Midwest to the warmer climate found along the southern perimeter of the United States. By way of illustration, the difference in the annual mean temperature between Cleveland, Ohio and Savannah, Georgia is roughly 9° C (16.7° F). These amenity benefits of warmer winters with a moderate degree of warming are largely not captured by any of the three IAMs.

Estimating the benefits or damages associated with a modest degree of warming is particularly important for the overall SCC values due to the effect of discounting, which cause effects in the early years to heavily influence the SCC value. The IWGSCC paper recognizes this:

—when the discount rate is 2.5 percent, about 45 percent of the 2010 SCC value is due to damages that occur in years when the temperature [change] is less than or equal to 3° C. This increases to approximately 55 percent and 80 percent at discount rates of 3 and 5 percent, respectively.”<sup>32</sup>

## 2. Domestic vs. international SCC

The IWGSCC paper briefly discusses the development of a domestic SCC. The paper notes that there are only a few regional or country specific estimates of domestic SCC and that the resulting values are “approximate, provisional, and highly speculative.”<sup>33</sup> The paper cites two alternative approaches as the basis for its conclusion that “a range of values from 7 to 23 percent should be used to adjust the global SCC to calculate domestic effects.”<sup>34</sup> Finally, the IWGSCC paper states that if more accurate approaches to estimating domestic SCC are developed, the Federal government will consider them in deciding whether to update its approach.

With the exception of this two paragraph discussion of domestic SCC, the IWGSCC paper is largely silent on the use of a domestic SCC value in future regulatory analysis, focusing instead almost entirely on a global SCC value. This may run counter to Circular A-4, which states:

Your analysis should focus on benefits and costs that accrue to citizens and residents of the United States. Where you choose to evaluate a regulation that is likely to have effects beyond the borders of the United States, these effects should be reported separately.<sup>35</sup>

We interpret Circular A-4 as requiring regulatory analysis to report domestic and global benefits (and costs) separately where agencies determine that it is important to assess the global effects of an action. It is worth noting that the appropriate SCC may depend on its intended use. In evaluating an action under an international agreement, it seems appropriate to use a global value. In evaluating unilateral actions, though, it may be more appropriate to rely on a domestic value, and to consider “leakage,” (where reductions in US emissions may be offset by increases in another country’s emissions). Finally, we would note that the literature underlying the global

---

<sup>32</sup> IWGSCC, p. 9.

<sup>33</sup> IWGSCC, p. 12.

<sup>34</sup> IWGSCC, p. 12. The lower end of the range is based on estimates from the FUND model; the upper end of the range is based on the assumption that domestic SCC would be proportional to the U.S. share of global GDP.

<sup>35</sup> Circular A-4, Section E

SCC value is also very limited and that the resulting values are also properly described as “approximate, provisional, and highly speculative.”

### 3. Appropriate discount rates

The IWGSCC paper provides a useful discussion of the basis for the adoption of alternative discount rates. (IWGSCC, 18-19):

...The descriptive approach reflects a positive (non-normative) perspective based on observations of people’s actual choices—e.g., savings versus consumption decisions over time, and allocations of savings among more and less risky investments. Advocates of this approach generally call for inferring the discount rate from market rates of return (because of a lack of justification for choosing a social welfare function that is any different than what decision makers (individuals) actually use” (Arrow, et al. 1996).

The prescriptive approach specifies a social welfare function that formalizes the normative judgments that the decision-maker wants explicitly to incorporate into the policy evaluation—e.g., how inter personal comparisons of utility should be made, and how the welfare of future generations should be weighed against that of the present generation. Ramsey (1928), for example, has argued that it is “ethically indefensible” to apply a positive pure rate of time preference to discount values across generations, and many agree with this view.

The IWGSCC paper reaches the following policy conclusion:

We draw on both approaches but rely primarily on the descriptive approach to inform the choice of discount rate. With recognition of its limitations, we find this approach to be the most defensible and transparent given its consistency with the standard contemporary theoretical foundations of benefit-cost analysis and with the approach required by OMB’s existing guidance. The logic of this framework also suggests that market rates should be used for discounting future consumption-equivalent damages...While relying primarily on the descriptive approach in selecting specific discount rates, the interagency group has been keenly aware of the deeply normative dimensions of both the debate over discounting in the intergenerational context and the consequences of selecting one discount rate over another.

The IWGSCC paper elects to “use three certainty-equivalent constant discount rates—2.5 percent, 3 percent, and 5 percent—that span a plausible range that reflects the disagreement in the literature on the appropriate market interest rate to use in this context and uncertainty about how interest rates may change over time.”<sup>36</sup> It defends the 3 percent rate as being consistent with the economics literature and OMB’s Circular A-4 guidance for the consumption rate of interest, and the upper value of 5 percent to reflect the possibility that climate damages are positively correlated with market returns, as well as in recognition that many consumers use a higher rate to smooth consumption across periods.<sup>37</sup>

---

<sup>36</sup> IWGSCC, 23

<sup>37</sup> IWGSCC, 23. It further explains: “The low value, 2.5 percent, is included to incorporate the concern that interest rates are highly uncertain over time. It represents the average certainty-equivalent rate using the mean-reverting and

The paper does not acknowledge, however, that Circular A-4 also advises agencies to use a discount rate of 7 percent: ~~For~~ regulatory analysis, you should provide estimates of net benefits using both 3 percent and 7 percent.”<sup>38</sup> In the context of the use of discount rates in comparing benefits and costs across generations, Circular A-4 provides the following additional advice: ~~If~~ your rule will have important intergenerational benefits or costs you might consider a further sensitivity analysis using a lower but positive discount rate in addition to calculating net benefits using discount rates of 3 and 7 percent.”<sup>39</sup> (emphasis added)

It is not at all clear, however, that using a lower discount rate would be beneficial to future generations. The government may have little ability to affect the net transfer of wealth from one generation to the next. If anything, investments compelled by regulation seem more likely to reduce total investment by crowding out private investments with higher rates of return. Future generations may well question why government policy limited them to receiving only a 3 percent rate of return, when investments with much higher rates of return were available and would have done far more to improve their welfare.

Nevertheless, the rationale provided by Circular A-4 for estimating benefits and costs at discount rates of 3 and 7 percent is unchanged from 2003. The 7 percent rate remains an appropriate estimate of the average before-tax rate of return to provide capital in the U.S. economy. As Circular A-4 states: ~~It~~ approximates the opportunity cost of capital, and it is the appropriate discount rate whenever the main effect of a regulation is to displace or alter the use of capital in the private sector.”<sup>40</sup>

Circular A-4 also notes that sensitivity analysis using higher discount rates might be appropriate if regulatory action will shift capital resources away from private investment in the corporate sector. The average rate of return to private corporate capital in the U.S. has been as high as 10 percent in some recent decades and the Federal government should be sensitive to the effects of regulatory policy on capital allocation.<sup>41</sup> The use of inappropriately low discount rates can justify government mandates that are not consistent with the opportunity cost of capital and shift the allocation of resources away from private production. In the extreme case, the use of an inappropriately low discount rate could appear to justify government takeover of production activities that properly reside in the private sector. For example, the government could show a greater profit making cars using its cost of capital than private automobile manufacturers can realize when faced with the real opportunity cost of capital in the private capital markets.

Of particular concern is the method of evaluating proposed rules for increasing the energy efficiency of durable goods (from DOE, DOT, and EPA). Agencies have been using A-4 discount rates, not only for the SCC and other externalities associated with fuel use, but also for

---

random walk approaches from Newell and Pizer (2003) starting at a discount rate of 3 percent...Without giving preference to a particular model, the average of the two rates is 2.5 percent. Further, a rate below the riskless rate would be justified if climate investments are negatively correlated with the overall market rate of return. Use of this lower value also responds to certain judgments using the prescriptive or normative approach and to the ethical objections that have been raised about rates of 3 percent or higher.”

<sup>38</sup> OMB, Circular A-4, p. 34

<sup>39</sup> OMB, Circular A-4, 36

<sup>40</sup> OMB, Circular A-4, 33

<sup>41</sup> OMB, Circular A-4, 34

the private fuel savings themselves. As a result, RIAs have shown benefits that have nothing to do with the market failure. EPA's 2009 analysis of proposed CAFE standards, for example, showed large net benefits that were highly insensitive to the Social Cost of Carbon. Even if the sign was changed on the SCC – implying that EPA's proposed rule would be *causing* global warming, instead of preventing it – the net benefits remained positive. This substitution of government discount rates in private decisions produces artificial benefits that obscure the real merits of policy options under consideration. When modeling such private investments, consumers' own preferences and discount rates should be used to evaluate private consumption streams; A-4 discounting should only apply to the public benefits of these programs.

### C. Disclosure

Regulatory analysis guidance has long recognized that the most effective policies for addressing information asymmetries involved disclosure of information.<sup>42</sup> The Report recommends the “continued use and more systematic investigation of such policies and their likely consequences,” and provides insightful guidance for ensuring the effectiveness of disclosure.

The examples used to illustrate disclosure however all appear to involve disclosure in addition to, rather than in lieu of, command-and-control regulation. Instructions for buckling seatbelts are in addition to mandatory passive restraints in new vehicles. MPG ratings on new vehicles are in addition to mandatory CAFE requirements. Nutrition Facts panels on food products are required in addition to restrictions on how food can be labeled. In some cases, the disclosure requirements address government failures, rather than market failures. The trans fat example the Report uses to illustrate that disclosure requirements can give manufacturers incentives to reformulate their products is just such a case. Prior to the FDA requirement that manufacturers label products with the amount of trans fat, the lack of information presented to consumers was due in substantial part to government failure. First, FDA regulations prohibited the provision of some truthful information about nutrient content, limiting information on nutrition labels to identified nutrients that either must be included or may be included voluntarily.<sup>43</sup> Prior to the required label change, trans fats were not on the list of identified nutrients, making it illegal for a manufacturer to make claims about trans fat content.<sup>44</sup> Second, trans fats were required to be listed as unsaturated fats (which consumers perceived to be healthier than saturated fats).<sup>45</sup>

## III. Recommendations and Conclusions

OMB's annual reports to Congress on the benefits and costs of regulation provide valuable information both on estimates of the effects of major regulations issued by Executive Branch agencies and also on OMB's focus and priorities. We applaud the emphasis on transparency in this year's report, and as noted above, offer several recommendations for achieving the

---

<sup>42</sup> See E.O. 12866 Sec 1(b)3, Circular A-4

<sup>43</sup> 21 CFR 101.9(c) Note that these regulations continue to limit the information that can be presented.

<sup>44</sup> 21 CFR 101.62(a) permits claims about fat or fatty acid content only if they use defined terms, and there were no defined terms for trans fats.

<sup>45</sup> It is interesting to note that FDA originally proposed that trans fats be listed as saturated fats, despite the fact that they are not saturated fats chemically or in their biological effects. As one commenter observed at the time, FDA sought to “mislead consumers for their own good.” (Howard Beales, Public Interest Comment of the Mercatus Center at George Mason University, <http://mercatus.org/publication/fdas-trans-fat-labeling2>)



President's goals of transparency and open government, as well as the analytical basis for new regulations .

OMB could improve the transparency and value of this report through small changes in its presentation of data on regulatory effects, including

- Provide dates, RINs and OMB's classification criteria in cost and benefit tables;
- Provide the data supporting Figure 2 of the Report (comparing net benefits of presidential administrations' first years);
- Provide a clear tabulation of data for estimates comprising the 10-year cost and benefit estimates (as well as earlier data collected by OMB);
- Quantify the range of dead-weight losses associated with transfer regulations; and
- Present estimates of regulatory effects and trends developed by other sources.

We caution against misrepresenting the economic impacts of regulation, including the effects of economic regulation on welfare, and the relationship between welfare and GDP.

We endorse the use of disclosure to address failures of private markets to provide information, but encourage the Administration to recognize and seek to correct government policies that hinder information disclosure (such as nutrient content claims) as well.

We enthusiastically support efforts to increase participation and collaboration, and suggest pilot efforts to use a wiki approach to engage the wisdom of dispersed knowledge. EPA's Integrated Risk Information System, which has been criticized for its lack of transparency, might benefit from a wiki approach.

We offer several recommendations for improving the analytical basis for regulations, including:

- Addressing key uncertainties with comprehensive quantitative uncertainty analysis;
- Following the Bipartisan Policy Center's recommendation to clearly distinguish questions that can be addressed through scientific results from those which concern policy.
- Understanding the effects of discounting and following the long-standing guidance of Circulars A-4 and A-94; and
- Exploring the significant gaps and uncertainties associated with the models relied on to estimate the social cost of carbon.